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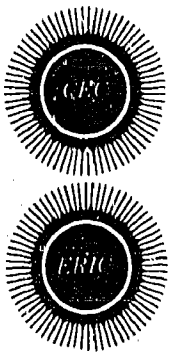
ABSTRACT

The selected bibliography on programed instruction contains approximately 70 abstracts with indexing information drawn from the computer file of abstracts representing the Council for Exceptional Children Information Center's complete holdings as of August, 1972. Abstracts were chosen using the criteria of availability of document to user, currency, information value, author's reputation, and classical content. Preliminary information explains how to read the abstract (a sample abstract is included which identifies the different parts of the abstract), how to use the author and subject indexes, how to purchase documents through the Educational Resources Information Center Document Reproduction Service (an order blank is provided), and provides an order blank for Exceptional Child Education Abstracts in which the abstracts are originally published, a list of indexing terms searched to compile the bibliography, and a list of journals from which articles are abstracted for the bibliography. Publication date of documents abstracted ranges from 1962 to 1972. (DB)



PROGRAMED INSTRUCTION

A Selective Bibliography

August, 1972

CEC Information Center on Exceptional Children
An ERIC Clearinghouse
The Council for Exceptional Children
Jefferson Plaza, Suite 900
1411 S. Jefferson Davis Highway
Arlington, Virginia 22202

Exceptional Child Bibliography Series No. 654

The work presented or reported herein was performed pursuant to a grant from the Bureau of Education for the Handicapped, US Office of Education, Department of Health, Education, and Welfare. However, the opinions expressed herein do not necessarily reflect the position or policy of the US Office of Education and no official endorsement by the US Office of Education should be inferred.

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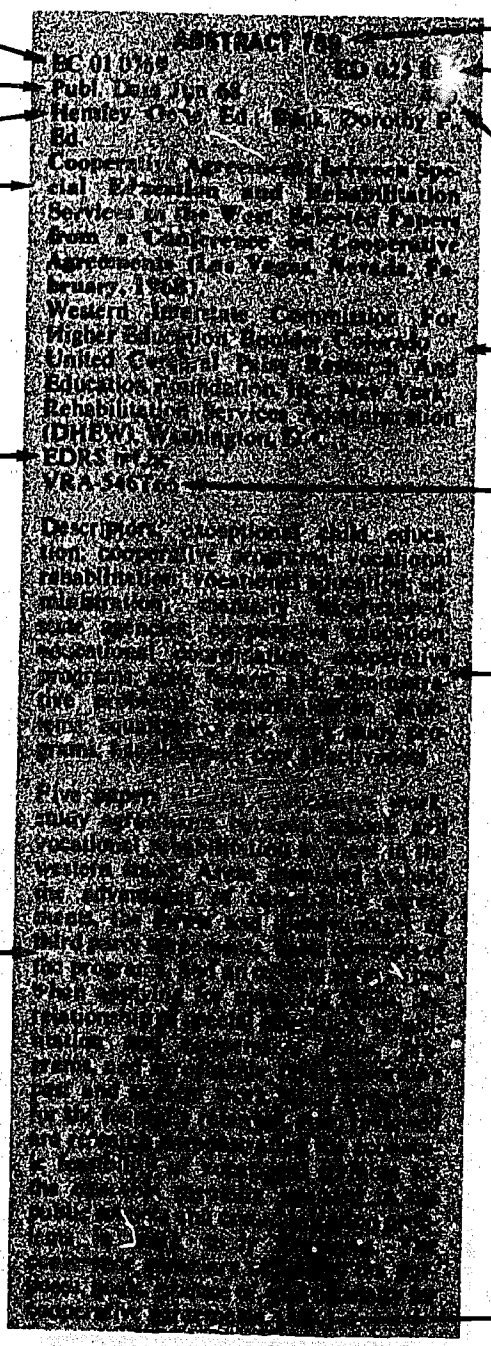

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Summary

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INDEXING TERMS SEARCHED

Indexing terms used to retrieve information on *Programed Instruction* from the Center's computer file of abstracts are listed alphabetically below:

Auditory Visual Kinesthetic Unit
Autoinstructional Aids
Autoinstructional Methods
Automated Stimulus Control Systems
Automation
B. F. Skinner
Car Top Unit
Computer Assisted Instruction
Computer Oriented Programs
Computers
Graflex Audio Graphic Instruction
Honeywell Series 200 System
Honeywell University of Minnesota
Language Laboratories
Learn Ease Teaching Device
Linear Programing
Mast Teaching Machine
Program Materials
Programed Instruction
Programed Material
Programed Materials
Programed Texts
Programed Tutoring
Programed Units
Programing
Programing Problems
Sequential Programs
Teaching Machines

JOURNALS USED

Abstracts of articles from the following periodicals appear in this bibliography:

American Annals of the Deaf
American Education
American Journal of Occupational Therapy
American Journal of Orthopsychiatry
Audecibel
Early Years
Education and Training of the Mentally Retarded
Education of the Visually Handicapped
Educational Technology
Exceptional Children
Journal of Speech and Hearing Disorders
Journal of Speech and Hearing Research
Manpower
NSPI Journal
New Outlook for the Blind
Southern Journal of Educational Research
TEACHING Exceptional Children
Volta Review

The abstracts in this bibliography were selected from *Exceptional Child Education Abstracts*, Volumes I-IV, No. 2.

ABSTRACTS

ABSTRACT 10133

EC 01 0133 ED N.A.
Publ. Date Mar 67 127p.
Holland, Audrey L.
Training Speech Sound Discrimination in Children Who Misarticulate, a Demonstration of the Use of Teaching Machine Techniques in Speech Correction.
Pittsburgh Univ., Pennsylvania
OEG-5-0976-4-11-3
EDRS mf,hc

Descriptors: exceptional child research; speech handicapped; programed instruction; speech therapy; articulation (speech); auditory discrimination; teaching machines; speech instruction; speech improvement; demonstration projects; programed materials

The results of a 2-year demonstration project in which 51 school age children (ages 6-14) with functional articulation disorders routinely received auditory discrimination training by programed instruction in an actual clinical setting are reported. Auditory discrimination programs (total 65) for the 10 most frequently misarticulated English consonants were written, evaluated, and used with the appropriate portion of the clinic population. Pre- and post-program test scores on measures of articulation, general auditory discrimination, and discrimination of the sounds related to program content were gathered. Results indicate that statistically significant increases were found in both discrimination and articulation as a function of programed discrimination training. The effects of routine use of programed instruction within a more conventional clinical setting are also considered. (AH)

ABSTRACT 10316

EC 01 0316 ED 012 992
Publ. Date Apr 67 45p.
Neyhus, Arthur I.
Self Teaching in the Development of Speechreading in Deaf Children.
Institute for Language Disorders, Evanston, Illinois
OEG-32-23-0790-5002
EDRS mf,hc

Descriptors: exceptional child research; audiovisual instruction; aurally handicapped; teaching methods; autoinstructional methods; lipreading; deaf; hard of hearing; autoinstructional aids; instructional films; children

The effectiveness of motion picture films as a teaching device in the development of lipreading skills and the use of a cartridge-load, self-winding eight millimeter projector as a teaching tool were studied. It was hypothesized that deaf and hard of hearing children would learn prescribed vocabulary more quickly by autoinstructional film methods than by conventional methods. Eighty-nine deaf or hard of hearing subjects, ages 4 to 10, were divided into four age groups. Deaf subjects had a minimum hearing level of 65 decibels (American Standards Association). Hard of hearing subjects had a maximum hearing level of 64 decibels (American Standards Association). Subjects within each age group were divided into three experimental groups. Group 1 was taught by the films. Group 2 was taught by the teacher and then permitted practice with the films. Group 3 was taught by the teacher only. Results showed no significant difference between the three groups, although Group 1 achieved their maximum scores in the least amount of time. Good lipreaders learned well under all the conditions, while poor lipreaders showed little improvement in any group. The film procedure could be used as a tool for practice and drill, enabling the teacher to devote more of her attention to the slower pupil. A reference list has 30 items. (JB)

ABSTRACT 10416

EC 01 0416 ED 014 190
Publ. Date Aug 67 165p.
Higgins, Conwell; Rusch, Reuben R.
Development and Evaluation of Auto-Instructional Programs in Arithmetic for the Educable Mentally Handicapped. Final Report.
Albany Public Schools, New York
EDRS mf,hc

Descriptors: exceptional child research; mathematics; mentally handicapped; programed instruction; educable mentally handicapped; autoinstructional programs; arithmetic; teaching machines; audiovisual programs; children; experimental programs; program development; program evaluation; program materials; programed units; Audio Visual Manipulative Desk

The purpose of this project was (1) to develop educational media for teaching educable mentally handicapped (EMH) children arithmetic concepts and (2) to evaluate the developed programed instructional materials. During the first phase of the study the activities were devoted toward accomplishing the first purpose, developing the equipment and materials. Several devices and combinations of devices were used during the trial period. The device finally developed, referred to as the audio-visual manipulative (AVM) desk, presents information on a screen through the use of a slide projector. Audio messages are transmitted through earphones and a speaker, and the child manipulates objects or writes on the response surface. Twenty-one different sequential arithmetic programs were developed for the desk for teaching EMH children skill sequences in arithmetic. Desk administered tests were also developed to assess the child's understanding of these concepts. Other materials developed include (1) a manual of instructions for teachers (which includes the program objectives) and (2) reinforcement materials for classroom use. During the evaluation phase of the study, four separate field studies were conducted. The results of these studies show that (1) the AVM system was an effective variable in producing differential results, (2) going through programs twice did produce higher post-test scores than going through the programs once, (3) the system could be used effectively in a classroom setting under the supervision of classroom teachers, and (4) programs developed for EMH children were not appropriate for trainable mentally handicapped children. The appendixes include detailed information on the desk and arithmetic programs. Twenty-three references are listed. (AA)

ABSTRACT 10445

EC 01 0445 ED 015 603
Publ. Date Aug 66 136p.
Karlsen, Bjorn
Teaching Beginning Reading to Hearing Impaired Children, Using a Visual Method and Teaching Machines. Final Report.
Minnesota Univ., Minneapolis
OEG-7-33-0400-230
EDRS mf,hc

Descriptors: exceptional child research; reading; programed instruction; aurally handicapped; reading instruction; beginning reading; autoinstructional programs; children; deaf; hard of hearing; programed materials; teaching machines; sequential programs; Stanford Achievement Test; Honeywell University of Minnesota Instructional Device; HUMID

An automated instructional system was developed to teach beginning reading to hearing impaired children using a non-oral method. Instruction was done with visual presentation using 35mm slides on a rear projection screen. This teaching machine, the Honeywell University of Minnesota Instructional Device (HUMID) was constructed with an automatic data recorder and printout device. The first of three studies discovered that instrumentation and programing needed to be improved. Two preliminary studies were conducted. The third study involved one experimental group of 10 first graders and one exceptional group of ten 9 and 10 year olds enrolled in classes for the deaf and hard of hearing. Control groups were matched for IQ, age, sex, hearing, and language performance. Over a period of 35 days, 34 programs were taught to the experimental group. Testing did not

reveal any statistically significant differences between the two experimental groups, although the older group performed consistently better than the younger group. On the HUMID posttest, the first graders performed significantly better (at the .01 level) than their control group. The older group also performed better than its control group, although the difference was not statistically significant. On the Stanford Achievement subtests of word meaning and paragraph meaning given to all four groups, only the younger group surpassed their controls at a level which approached significance. There were no statistically significant differences between the older experimental and control groups. Although an automated system of non-oral reading instruction can be developed successfully, it would involve a tremendous amount of programing. The HUMID staff estimated that to bring deaf children from beginning reading to fourth grade reading would require more than 800 programs of 30 to 40 frames each and must also be accompanied by a systematic program of language development. Five studies were carried out within this project by graduate students. The major finding was that data on the response delays has limited usefulness with this method of teaching reading. Programing techniques, content of programs, and information on the technical development of HUMID are presented. A reference list cites 34 items. (MW)

ABSTRACT 10497

EC 01 0497 ED N.A.
Publ. Date Nov 67 47p.
Olton, Robert M. and Others
The Development of Productive Thinking Skills in Fifth-Grade Children.
Wisconsin Univ., Madison, Res. Dev. Ctr. Cognitive Learn.
OEC-5-10-154
EDRS mf,hc

Descriptors: exceptional child research; creativity; programed instruction; cognitive processes; creative thinking; grade 5; problem solving; thought processes; autoinstructional programs; classroom environment; intelligence factors; sex differences; instructional materials; programed materials; cognitive tests; testing; skill development

The study investigated the extent to which increments in the thinking and problem solving performance of fifth grade students could be produced by the use of self instructional programed lessons (The Productive Thinking Program, Series One--General Problem Solving) which were designed to teach skills and strategies of creative thinking independent of any specific subject field. All the students in 44 of 47 fifth grade classes in Racine, Wisconsin, Unified School District Number One, participated in the experiment. The 16 programed lessons were administered one per day for 4 days of each week and the teacher's role was held to a minimum. Eight pretests, two internal tests, and 11 posttests of productive thinking were given to all subjects. Results, based on an analysis of test results of a sample of eight males and eight females selected from each class (704 students), showed that The Productive Thinking Program produced statistically significant (p is at least .05) increments in thinking and problem solving performance on 13 out of 40 internal and posttest variables, on measures emphasizing convergent thinking, and on measures dealing with the number and quality of ideas. These instructional benefits occurred for virtually all types of students (regardless of sex or general level of IQ), and were especially marked for students in classrooms having environments which were judged to provide relatively little support and encouragement for the development of productive thinking. These effects were obtained when the materials were used as an entirely self contained, self instruction program. Considerably greater educational benefits could be expected under conditions where materials are reinforced by active teacher participation. Quite apart from the effects of the instructional materials, performance on the productive thinking measures used in this study was significantly (p is less than .01) related to sex (girls generally scoring higher than boys) and showed a strong and positive relation to IQ. the appendix contains an example of the programed lessons. Thirty tables of statistics and 14 references are included. (AA/RS)

ABSTRACT 10637

EC 01 0637 ED 024 197
Publ. Date Jan 68 357p.
Garrett, Edgar Ray
Speech and Language Therapy under an Automated Stimulus Control System.
New Mexico State University, Las Cruces
Office of Education (DHEW), Washington, D. C., Bureau of Education for the Handicapped
EDRS mf,hc
OEC-6-10-198
BR-5-0586

Descriptors: exceptional child research; programed instruction; mentally handicapped; speech therapy; learning disabilities; automation; schematic studies; aphasia; voice disorders; auditory discrimination; stimulus behavior; teaching machines; reinforcement; language handicapped; aural stimuli; articulation (speech); Templin Darley Articulation Test; Automated Stimulus Control System; ASCS

Programed instruction for speech and language therapy, based upon stimulus control programing and presented by a completely automated teaching machine, was evaluated with 32 mentally retarded children, 20 children with language disorders (childhood aphasia), six adult aphasics, and 60 normal elementary school children. Posttesting with the Templin-Darley Articulation Test showed that the Automated Stimulus Control System (ASCS) machine treatment produced non-significant results with mental significantly improved discrimination and articulation with those receiving pure tone only reinforcement (p less than .05). ASCS machine treatment produced significant changes with child aphasics (p less than .01). Following treatment, these subjects also showed improvement on the Peabody Picture Vocabulary Test, the Illinois Test of Psycholinguistic Abilities, and on word list performance. Both ASCS machine treatment and ASCS clinician-presented treatment produced significantly improved articulation with normal elementary school children (p less than .001). Adult aphasics showed no significant change, nor did retardates receiving traditonal therapy. Results indicated that significant changes in functional articulation programs occurred in 20% of the time usually required by traditional therapies. (Author/SN)

ABSTRACT 10754

EC 01 0754 ED 025 046
Publ. Date (66) 179p.
Platt, Henry and Others
Automation in Vocational Training of the Mentally Retarded. Final Report.
Devereux Foundation Institute for Research and Training, Devon, Pennsylvania
Vocational Rehabilitation Administration (DHEW), Washington, D. C.
EDRS mf,hc
VRA-R-993-P-63

Descriptors: exceptional child research; mentally handicapped; emotionally disturbed; programed instruction; vocational education; autoinstructional aids; autoinstructional methods; job skills; audiovisual instruction; teaching methods; instructional materials; autoinstructional programs; instructional technology; educable mentally handicapped; teaching machines; vocational training centers; learning; homemaking skills; Graflex Audio Graphic Instructor; Car Tap Unit; Auditory Visual Kinesthetic Unit; Devereux Model 50 Teaching Aid; Learn Ease Teaching Device; Mast Teaching Machine

Various uses of automation in teaching were studied with mentally retarded (IQ 70 to 90) and/or emotionally disturbed (IQ 80 to 90) youth aged 16 to 20. Programed instruction was presented by six audiovisual devices and techniques: the Devereux Model 50 Teaching Aid, the Learn-Ease Teaching Device; the Mast Teaching Machine, the Graflex Audio-Graphic Instructor, the Car Tap Unit, and the A-V-K (Auditory-Visual-Kinesthetic) Unit. Several preliminary field tests were conducted which involved the development of skills in work related areas; another study involved measurement in the kitchen. Later field testing employed units on job responsibilities, tool recognition, telephone use, and home nursing. Data analysis indicated that the automated method was usually more efficient than the conventional and programed lectured methods; the method integrating conventional and automated instruction was most effective; the machine method alone was least effective; autoinstructional aids de-

creased the amount of time needed to learn; autoinstructional aids produced greater retention; and autoinstructional aids produced group gains, but individual gains varied considerably within each group. (JD)

ABSTRACT 10766

EC 01 0766 ED 025 052
Publ. Date Aug 67 75p.
Malpass, Leslie F.
Further Development, Comparison and Evaluation of Programed Instruction for Retarded Children. Final Report.
University of South Florida, Tampa
Office of Education (DHEW), Washington, D. C., Bureau of Research
EDRS mf,hc
OEG-7-19-0315-291
BR-5-0667

Descriptors: exceptional child research; mentally handicapped; reading; programed instruction; educable mentally handicapped; public schools; special classes; institutional schools; reading instruction; spelling; spelling instruction; reading improvement; retention; achievement gains; programed materials; programed texts; teaching machines; autoinstructional methods; conventional instruction

Three hundred words were programed for presentation by teaching machine or by workbook to mentally handicapped, nonreading subjects selected from the public school system (69 subjects) and from an institution (30 subjects). Both groups were matched on chronological age, mental age, programed words known, Gray Oral Reading Test (raw score) and a paragraph reading test score. One group received instruction by teaching machine, one by programed workbook, and one by conventional classroom methods. Administration required approximately 20 hours over a 5-month period. Measures of gain and retention included programed words known, the Gray Oral Reading Test, spelling words known, and a paragraph reading test administered post-instruction and at 30- and 60-day intervals. Statistical analysis revealed both the institutional and public school groups scored significantly higher than the classroom group on the measures of programed words learned (p equals .05 and .01 respectively) and on the paragraph reading test (p equals .01 for both). Retention remained significantly high (p equals .01) for the public school group but was not demonstrated for the institutional group. The technique was not effective for teaching spelling and in most cases scores on the Gray Oral Reading Test were not significantly different among the groups. (Author/RS)

ABSTRACT 10853

EC 01 0853 ED 014 193
Publ. Date Mar 67 85p.
Mallinson, George G.
Programmed Learning Materials for the Blind.
Western Michigan University, Kalamazoo
EDRS mf,hc
OEG-7-0580-191

Descriptors: exceptional child research; programed instruction; visually handicapped; sciences; braille; blind; science education; adolescents; instructional materials; junior high school students; learning processes; programed materials; science instruction; science materials; science programs; stimulus devices

Designed as a preliminary investigation to determine the feasibility of using programed learning materials with blind students, this study developed four types of stimulus-response modes for programed instruction: audio stimulus-audio response, audio stimulus-braille response, braille stimulus-audio response, and braille stimulus-braille response. A pilot testing program revealed the braille stimulus-braille response mode was most appropriate. Tests determined that the most efficient braille stimulus-braille response format was a booklet in which the braille frame appeared on one page and the correct response on the next. The student responded with a braille writer or braille slate and stylus. Commercially developed programs for junior high school science were modified for use with blind students. Two 50-frame programs reproduced in braille were tested with 57 blind junior high school students. Results showed they could handle these programed materials in a reasonable amount of time and with a high degree of accuracy. Instructions were followed with minimal difficulty. Performance improved with second book. In modifying the program for use with the blind, 32 symbols were developed for the most frequently used science terms in order to reduce the bulk of braille materials. To determine whether blind students could discriminate among the symbols and between the symbols and braille, 43 blind students (grades 6 to 10) were given tests in the form of checkers and checkerboards which contained the various special science symbols. Student scores improved as IQ rose, junior high students scored better than sixth graders. high school students reacted negatively and did not do well. On second trials students required less time and scored fewer errors. The appendixes contain sample science programs on physical and chemical changes, symbols and formulas, and the plastids. (TM)

ABSTRACT 10884

EC 01 0884 ED 014 161
Publ. Date May 66 70p.
Eldred, Donald M.
The Use of Programmed Instruction with Disturbed Students.
Vermont State Hospital, Waterbury
EDRS mf,hc

Descriptors: exceptional child research; programed instruction; emotionally disturbed; slow learners; underachievers; programed materials; children; adolescents; hospital schools; public schools; test results; high school students

A 3-year investigation was undertaken to determine the effects of programed instruction on children and adolescents. The 157 subjects were pupils from a state mental hospital school and slow learners and underachievers in one parochial and two public high schools. Although not available for all subjects, results of the Rorschach Test, the Gittinger Personality Assessment System, and psychiatric ratings were used. None of the objective measures revealed any significant differences between the control and the experimental groups. Possible reasons for lack of significant data are discussed and recommendations and precautions for future research studies are made. Thirty pages of administrator, teacher, and student comments and evaluations are presented. The appendix includes general instructions for the use of programed instruction, an annotated listing of 20 programed materials, and a 74-item bibliography. (JA)

ABSTRACT 11033

EC 01 1033 ED N.A.
Publ. Date Nov 67 6p.
Rainey, Dan S.; Kelly, Francis J.
An Evaluation of a Programed Textbook with Educable Mentally Retarded Children.
Southern Illinois University, Carbondale
EDRS not available
Exceptional Children; V34 N3 P169-74 Nov 1967

Descriptors: exceptional child research; mentally handicapped; mathematics; teaching methods; programed instruction; achievement; educable mentally handicapped; rote learning; number concepts; division; multiplication; small group instruction; reinforcement; failure factors; teaching machines; reading achievement; sex differences; visual learning

Educable mentally handicapped children in public school special classes (mean IQ 65, mean chronological age 14) participated in a study to evaluate three arithmetic teaching methods: 20 received the TMI Grolier Multiplication and Division Facts Program; 26, a teacher made program using the rote approach; and 36, a teacher made program using the understanding approach. Each group received arithmetic instruction 1 hour daily for 4 weeks. A multivariate analysis of variance was used to assess the relative effectiveness of the several treatments. Results for three groups of females indicate that for those with reading grade scores above 2.3, the programed instruction was more effective than rote or understanding procedures (p less than .02). The understanding group showed a negative relationship between reading level and posttest arithmetic reasoning scores while the rote group scored significantly higher in division (p less than .00005). No treatment differences were found for multiplication. (AP)

ABSTRACT 11169

EC 01 1169 ED 003 150
Publ. Date 13 Aug 65 116p.
Homme, Lloyd E.
A Demonstration of the Use of Self-Instructional and Other Teaching Techniques for Remedial Instruction of Low-Achieving Adolescents in Reading and Mathematics. Final Report.
TMI Institute, Albuquerque, New Mexico
Office of Education (DHEW), Washington, D. C.
EDRS mf,hc
OEC-4-16-033 NDEA-VIIB-487

Descriptors: exceptional child research; instructional materials; reading; mathematics; programed instruction; teaching methods; academic performance; achievement gains; motivation; low achievers; adolescents; demonstration programs; remedial instruction; autoinstructional aids

A demonstration project was conducted to develop and test a system of instructional materials intended to provide remedial instruction in reading and mathematics for low achieving adolescents; to determine the effects of such a system on retention and job performance over a 6-month period; to revise the system and prepare an instructor's utilization manual for its use, and field test it under conditions of use, both within and outside the conventional school setting; to make final recommendations concerning the development and use of instructional material intended for the school dropout or potential dropout; and to revise the utilization manual on the basis of the field testing. The project was conducted in four phases: teaching, record keeping, field testing, and data collection and analysis. Results sufficiently confirmed project expectations, and further applications were recommended. The system appeared to provide the positive atmosphere for low achievers necessary to produce motivation for the pursuit of academic goals. Research was recommended in two directions: further refinement of administrative techniques to reduce unfavorable teacher and student attitudes, and further research into components of the system itself. The instructor's utilization manual is included. (HB)

ABSTRACT 11662

EC 01 1662 ED 003 176
Publ. Date 29 Feb 64 370p.
Blackman, Leonard S. and Others
The Development and Evaluation of a Curriculum for Educable Mental Retardates Utilizing Self-Instructor Devices for Teaching Machines.
Edward R. Johnstone Training and Research Center
Office of Education (DHEW), Washington, D. C.
EDRS mf,hc
OEG-7-28-073 NDEA-VII A-368

Descriptors: exceptional child research; mentally handicapped; curriculum; programed instruction; programed materials; instructional technology; skill development; adolescents; autoinstructional aids; curriculum development; curriculum evaluation; educable mentally handicapped; program evaluation; instructional programs; teaching machines

An evaluation of self instructional devices in the classroom and the related psychological research is presented. Part 1 covers phases of machine and program development, a review of relevant literature, and the major experiment. Educable mentally retarded 14-year-olds were selected and divided into two groups. The experimental group consisted of 19 persons and the control group of 17. Both groups were tested at the beginning and end of the year. The experimental group received programed instruction, and the control group was taught conventionally. Analysis of the data showed negative results in the effectiveness of machine instruction skill development with the exception of one arithmetic measure. Further research was encouraged to study the psychological properties of school tasks. Part 2 includes theoretical statements and literature surveys. (RS)

ABSTRACT 12075

EC 01 2075 ED 010 766
Publ. Date 65 69p.
Sands, Theodore; Hicklin, Charles R.
The Development and Testing of Instructional Materials for Gifted Primary Pupils. Final Report.
Illinois State University, Normal
Illinois Office of Superintendent of Public Instruction, Normal
EDRS mf,hc

Descriptors: exceptional child research; gifted; programed instruction; sciences; instructional materials; elementary school students; elementary school science; parent attitudes; audiovisual instruction; mathematics; education; physical sciences; student evaluation

Self-instructional science materials for gifted primary students were developed and used with first- and second-grade students. Units on atomic structure, the nature of molecules, measurement, and mathematics were developed, used, evaluated, and revised over a 2-year period. Lessons were presented through the use of tape players, illustrative materials, and workbooks. Students were selected on the basis of IQ scores and assigned to two groups. Each group used the materials for one-half of the experimental period. All students were pretested, tested at the end of the fourth week, and posttested for achievement with instruments developed for the study. Other data were obtained from teacher evaluation forms and questionnaires completed by teachers and parents. Significant gains, at the .05 level, were obtained for the units concerned with mathematics, atoms, and measurement. A majority of the parents favored the use of the materials and indicated that the children developed interest through their studies. (AG)

ABSTRACT 20040

EC 02 0040 ED 003 579
Publ. Date 62 85p.
Smith, Wendell I.; Moore, J. William
Programed Materials in Mathematics for Superior Students in Rural Schools.
Bucknell University, Lewisburg, Pennsylvania
Office of Education (DHEW), Washington, D. C.
EDRS mf,hc
OEG-736101 NDEA-VIIA-489

Descriptors: exceptional child research; gifted; mathematics; teaching methods; programed instruction; mathematics instruction; teaching machines; rural schools; programed texts; autoinstructional programs; modern mathematics; student seminars; instructional technology; programed materials; high school students; rural education

A study was conducted on the achievements of superior students who used programed instruction and seminars in modern mathematics. Two experiments were conducted to test the hypotheses that superior students using programed instruction will achieve higher scores than those using conventional materials, students using programed instruction by machine will not differ from those using a programed textbook, and students will not show a preference between the two modes of programed instruction. Four groups were established for the basic experiment. The sample consisted of 100 high school students who were randomly assigned to the machine, programed textbook, conventional textbook, or control groups. The results indicated that self-instructional materials in mathematics can be used profitably by superior students with or without a teacher. (RS)

ABSTRACT 20502

EC 02 0502 ED N.A.
Publ. Date Oct 69 13p.
Flanigan, Patrick J.; Joslin, Elizabeth S.
Patterns of Response in the Perception of Braille Configurations.
EDRS not available
New Outlook Blind; V63 N8 P232-44 Oct 1969

Descriptors: exceptional child research; visually handicapped; tactual perception; programed materials; braille; tachistoscopes; discrimination learning; reading speed

To examine the relationship between stimulus presentation and response on a programed tachistoscopic instructional device, and the effect of a remediation program on this relationship and on the speed of braille reading, 27 subjects in grades 3 through 9 were studied (ages ranged from 110 to 212 months, mental ages from 93 to 269 months, and IQ's from 65 to 144). The subjects were divided into two groups, one using a programed learning device, the other traditional braille materials. The results indicated reading errors increased as speed of presentation increased; subjects with higher IQ's made fewer errors on programed material than those with lower IQ's; certain letters in traditional braille were more difficult than others (R, Z, and N) seemingly due to lack of characteristic forms; and the group using the

remediation device demonstrated an increase in reading rate of three and one half words per minute over the control group. (JP)

ABSTRACT 20638

EC 02 0638 ED N.A.
Publ. Date 67 7p.
Olson, Jack and Others
The Implications of Programmed Instruction on the Motivation for Learning in Hearing Impaired Children.
EDRS not available
Audecibel; V16 N4 P189-93, 196-7 Fal 1967

Descriptors: exceptional child education; aurally handicapped; programed instruction; motivation; reading; sequential reading programs; reading programs; reading instruction; language; student motivation; learning motivation; programed materials; developmental reading; recreational reading; remedial reading

The prelingually deaf child experiences difficulty with both the expressive and receptive aspects of language which programed instruction attempts to overcome. This method is based on the following factors: the deaf can learn more easily if language structure is disassembled and presented in small sequential steps, correct responses are immediately reinforced, and success experiences while completing a program are used as a primary reinforcer and a challenge for learning. Aspects of programed materials for developmental, informative, recreational, and remedial reading are discussed indicating in all that programed materials should be interesting and stimulating, have controlled and continually reinforced vocabulary and small sequential steps, present challenging linguistic concepts, and be tested and satisfactory to a given criteria. Language concepts which can readily be taught by the classroom teacher should not be programed since programing is time consuming and expensive. Language programers for project LIFE (Language Instruction to Facilitate Education of Hearing Impaired Children) have found that once a deaf child learns to read informatively through programed instruction, his recreational reading is also enhanced, and it is suggested that of the various teaching methods presently being developed, programed instruction possibly holds the greatest promise as a supplemental and remedial teaching device. (SD)

ABSTRACT 20788

EC 02 0788 ED 029 973
Publ. Date Dec 68 43p.
Sandhofer, Richard G.; Nichols, Jack L., Ed.
The Development of Specialized Educational Programs for Poor Learners for Use in Non-Educational Settings. Final Report.
Minneapolis Rehabilitation Center, Inc., Minnesota, Research and Development Division
Office of Education (DHEW), Washington, D. C.;
United Fund of Minneapolis, Minnesota
EDRS mf,hc
OEG-6-85-088
BR-5-0191

Descriptors: exceptional child education; adult vocational education; audiovisual instruction; autoinstructional aids; autoinstructional programs; experimental programs; individualized instruction; job skills; job training; material development; custodial training; program descriptions; programed instruction; machinists; slow learners; vocational rehabilitation; vocational education; instructional materials

Automated audio visual vocational training courses for duplication machine operator and janitor occupations are presented for poor learners to use in rehabilitation centers, state hospitals, etc. A description of program development includes: surveying pertinent literature in the field of program learning of occupations; visiting business and industrial concerns to determine trainee responsibilities; training curriculum development personnel; preparing, testing and revising subject matter; selecting a presentation system; intergrating the content and presentation system; and monitoring trainee performance in the completed program. The teaching system used contains programed question and response booklets, tape recordings, color slides, structured practice, and human supervision. The conclusion that programs imparted the necessary skills to poor learners, and could be effectively used in non-educational setting is made. Individualized vocational training for poor learners is noted to have some distinct advantages, along with techniques used with similar job training programs for other occupations. The development and reproduction of the programs is reported to be time-consuming, difficult and costly. (FP)

ABSTRACT 20918

EC 02 0918 ED 019 805
Publ. Date Apr 67 11p.
Lazar, Alfred L.; Gelhart, Robert P.
A Selected Bibliography on Teaching Machines and Programed Instruction.
Colorado State College, Greeley, Rocky Mountain SEIMC
EDRS mf,hc

Descriptors: exceptional child education; teaching methods; programed instruction; bibliographies; teaching machines; methods research; educational research; instructional technology; handicapped children: autoinstructional aids; programed materials; research projects; periodicals; books

The bibliography lists 131 selected publications on teaching machines and programed instruction. Listed under books are 55 items dating from 1959 to 1966. Articles and periodicals cited date from 1915 to 1965 and number 53. Included as miscellaneous publications are 23 listings such as theses, project reports, government publications, and dittos ranging in date from 1949 to 1966. (JD)

ABSTRACT 20957

EC 02 0957 ED 033 497
Publ. Date Feb 67 68p.
Stark, Joel
Programmed Instruction for Perceptually Handicapped Children with Language Difficulties. Interim Report.
Stanford University, California
Office of Education (DHEW), Washington, D. C., Bureau of Research
EDRS mf,hc
OEG-4-6-068527-1587
BR-6-8527

Descriptors: exceptional child research; aphasia; discrimination learning; multisensory learning; material development; intermode differences; learning disabilities; language development; verbal stimuli; visual stimuli; visual discrimination; instructional materials; auditory discrimination; learning characteristics; language patterns; programed instruction; audiovisual instruction; educational equipment

Three projects were designed to develop and evaluate materials for use with aphasic children (perceptually handicapped with language problems). The first project presented stimulus pairs in varying modality conditions. Results suggested that, although the aphasic children were not capable of improving their auditory discrimination performance, they had some ability to improve discrimination performance in the visual and especially in the combined modalities. The second project, ongoing when reported, studied the nature of auditory sequencing abilities in an optimally controlled environment and explored means of improving those abilities. Stimuli were presented in successive auditory, simultaneous auditory, or successive visual conditions; intensity, inflection, and configuration were varied. The third project, also ongoing, developed insturctional materials making maximal use of visual stimuli with primarily auditory programs designed to provide phrase structure and appropriate units. Appendixes, comprising over half of the document, report on the form program, the sequencing simuli and equipment, teaching programs, and stimulus items and scoring forms. (JD)

ABSTRACT 21154

EC 02 1154 ED N.A.
Publ. Date 70 5p.
Brown, Jerome; Arkebauer, Herbert J.
Using the Language Master with Hearing Impaired Children.
EDRS not available
Teaching Exceptional Children; V2 N2 P81-5 Win 1970

Descriptors: exceptional child research; aurally handicapped; instructional materials; teaching machines; audiovisual aids; programed instruction; self pacing machines; autoinstructional aids; language instruction; vocabulary development; Language Master

The use of the Language Master machine for vocabulary instruction with hearing impaired children was examined to compare its effectiveness with traditional teaching procedures. The results showed

no significant differences in vocabulary gains between the two methods, but the authors suggested that the use of the Language Master provides the additional advantages of freeing the teacher from certain routine activities, and enabling the child to assume increased independence and participation in the learning process. (RD)

ABSTRACT 21202

EC 02 1202 ED 027 759
Publ. Date Mar 69 6p.
Feldhusen, John F. and Others
The Right Kind of Programmed Instruction for the Gifted.
EDRS not available
NSPI Journal, Trinity University, 715 Stadium Drive, San Antonio, Texas 78212.
NSPI Journal; V8 N3 P6-11 Mar 1969

Descriptors: exceptional child education; feedback; gifted; individual instruction; learning processes; material development; programed instruction; programing; taxonomy; teacher developed materials; programed materials

The problems inherent in developing programed materials for the gifted are examined, and a list of 15 characteristics that programs for these children should include is discussed at some length. Appended is a list of over 25 references. (LS)

ABSTRACT 21230

EC 02 1230 ED 003 292
Publ. Date 64 59p.
Bornstein, Harry
An Evaluation of High School Mathematics Programmed Texts When Used With Deaf Students.
Gallaudet College, Washington, D. C.
Office of Education (DHEW), Washington, D. C.
EDRS mf,hc
CRP-1633

Descriptors: exceptional child research; aurally handicapped; mathematics; teaching methods; programed instruction; programed texts; achievement; comparative analysis; instructional technology; programed materials; plane geometry; algebra

A comparison was made of the rate and level of achievement of 150 deaf students resulting from the use of programed texts as against the usual lecture methods in high school mathematics. Each of four mathematics teachers had two comparable classes. The control group received information by simultaneous lecture and the experimental groups used the programed texts. Pre- and post-tests were administered along with such achievement instruments as the Lankton 1st Year Algebra Test, the Blyth 2nd Year Algebra Test, and the Shaycroft Plane Geometry Test. The programed text classes in elementary algebra and plane geometry did not gain significantly over lecture methods. In intermediate algebra the programed text was favored. The rapid learning factor showed that in all but one case the average amount of time required for the programed classes equalled or excelled that allotted to the lecture classes. (HB)

ABSTRACT 21273

EC 02 1273 ED 003 817
Publ. Date 65 231p.
Stolurow, Lawrence M.
Principles for Programing Learning Materials in Self-Instructional Devices for Mentally Retarded Children. Final Report.
Illinois University, Urbana
EDRS mf,hc
CRP-661

Descriptors: exceptional child research; programed instruction; mentally handicapped; instructional materials; teaching methods; recognition; recall (psychological); stimulus behavior; sight vocabulary; vocabulary development; student ability; verbal ability; programed materials; educable mentally handicapped; autoinstructional aids; teaching machines

Principles for programing instructional materials for teaching mental retardates were developed from concepts derived from a theory previously developed by the author. The theory placed emphasis on the cueing function in the stimulus control of behavior. Relevant sections of the theory and related research were described. Separate experiments were conducted for grouping and spacing of frames with common stimulus elements, recognition and recall, under stimulus control, sequencing complex associative paradigms to be taught in both a forward and backward direction; prompting versus confirmation sequences and overlearning in the automated teaching of sight vocabulary; prompting, confirmation, and vanishing in the automated teaching of a sight vocabulary; and applying a computer prepared program for automated frame writing. Some of the findings were as follow: optimum sequence of material for the learner could be contingent upon his aptitudes or abilities, explicit rules for generating programs could be built into the programing used by the computer in writing frames, use of a prompting stimulus-response (S-R) sequence produced more rapid learning than use of a confirmation S-R sequence, and a computer-prepared program to generate instructional materials appeared successful in producing a change in the subject's ability to express himself. (RS)

ABSTRACT 21466

EC 02 1466 ED 034 344
Publ. Date 69 49p.
A Report of the 1969 Introductory and Advanced Institutes in Programed Instruction and Instructional Systems for Teachers of the Deaf.
Southwest Regional Media Center for the Deaf, Las Cruces, New Mexico
Office of Education (DHEW), Washington, D. C., Media Services and Captioned Films
EDRS mf,hc
OEC-4-7000183-0183

Descriptors: exceptional child education; programed instruction; aurally handicapped; summer institutes; program evaluation; teacher education; teacher attitudes; teacher evaluation; program descriptions

To provide participants with intensive training in programed instruction, to make them more knowledgeable consumers of programed instruction materials, and to develop programing skills on a professional level so that they could apply the systems approach in development of instructional materials, two training institutes were initiated. A total of 44 teachers of the deaf participated in the institutes which lasted 5 weeks each during the summers of 1968 and 1969. Included are the calendar of events, the instructional program log, programed instructional material developed by the institutes, administrative details, social activities, and evaluations. The overall evaluation was that the institutes were well designed and helpful; a complete breakdown of evaluated areas is provided. Also presented are summaries of the evaluation, the instructor evaluation form, the consultant evaluation form, recommendations, and a roster and photograph of staff, instructors, and participants. (JM)

ABSTRACT 21609

EC 02 1609 ED N.A.
Publ. Date Mar 70 13p.
Tobin, M. J. and Others
Programed Learning for the Blind; Some Exploratory Studies.
EDRS not available
Education of the Visually Handicapped; V2 N1 P11-23 Mar 1970

Descriptors: exceptional child research; visually handicapped; programed instruction; educational methods; braille; science instruction; social studies; teaching machines; England

Six studies on programed learning for the blind are presented. The research is concerned with using programed instruction for teaching braille (two studies using two different programs), a project to develop and construct a braille teaching machine, use of a branching program to teach social studies, testing a science program, and evaluating the effectiveness of braille and audio presentation of programed materials. Each study is briefly described and tables of results presented. The general conclusions reached were that programed instruction is effective in teaching the visually impaired, that programing may be of value in all curriculum areas, and that in many cases programs for the sighted may be readily adapted for use with the visually handicapped. (JM)

ABSTRACT 22765

EC 02 2765 ED 010 839
Publ. Date Dec 66 42p.
Coss, Joe Glenn and Others
Effectiveness of Automated Visual Programed Instruction with Paraplegic and Other Severely Handicapped Students.

Downey Unified School District, California
Office of Education (DHEW), Washington, D. C.
EDRS mf,hc
OEG-31-14-00410-5016
BR-5-0411

Descriptors: exceptional child research; teaching machines; physically handicapped; arithmetic; programed instruction; adolescents

Twenty eight severely physically handicapped patients (ages 12 to 21 years) participated in a study of the effectiveness of automated visual programed instruction. They were divided into four groups matched for reading level and intelligence, and were given one of three treatment modes: alternation between teaching machines and classroom, classroom only, and teaching machines only. Results showed that teaching machines were about two thirds more efficient in time, were most effective in combination with classroom teaching, and were most effective with subjects of lower intelligence. Classroom instruction became more effective as instructional material became more difficult, and machines could be adapted for various disabilities. (Author/RJ)

ABSTRACT 22887

EC 02 2887 ED 040 539
Publ. Date Jul 68 27p.
Coleman, Thomas; Langberg, George
An Automated and Programed Laboratory for Instruction in the Areas of Speech and Communication. Final Report.
Ossining Public Schools, New York
New York State Education Department, Albany, Division of Research
EDRS mf,hc

Descriptors: exceptional child education; speech handicapped; speech therapy; programed instruction; autoinstructional methods; program evaluation; public schools; articulation (speech); educational methods; exceptional child research

An experimental public school speech therapy program is described, which offers automated, programed instruction in sound production and auditory training. The experiment includes self-teaching methods, as well as utilization of paraprofessional personnel under the supervision of a qualified speech therapist. Although the automated program was presented as a supplement to traditional speech therapy methods, an effort was made to evaluate its contribution to the accomplishment of therapy goals. Utilizing 28 subjects, the investigators compared articulation test scores of those who had received only traditional therapy with those who had received both traditional and automated therapy. Results indicated a significant improvement in articulation with those students who received combined treatment. Although the study was limited, it was felt that automated programing may represent an important instrumentality for accomplishing school therapy objectives. (JB)

ABSTRACT 23173

EC 02 3173 ED N.A.
Publ. Date 69 27p.
Cotten, Paul D.
The Effect of Secondary Reinforcing Cues and Two Schedules of Reinforcement on Programmed Learning Using Mentally Retarded Individuals.
EDRS not available
Southern Journal of Educational Research; V3 N3 P193-219 Jul 1969

Descriptors: exceptional child research; mentally handicapped; educable mentally handicapped; programed instruction; reinforcers; reinforcement

To test the effect of secondary reinforcing cues and intermittent scheduling on programed learning with the mentally handicapped, 40 noninstitutionalized educable mentally handicapped children were taught a spatial organization task and a word learning task. The apparatus allowed simultaneous, separate, or combined presentation of the primary reinforcer and two secondary reinforcing cues. Different schedules of reinforcement using different secondary reinforcers or no secondary ones were used. Results showed intermittent schedules of secondary reinforcement more effective than continuous ones on the spatial organization task. Combined cues were no more effective than single ones, and neither of the single cues was more effective than the other. No conclusive results were obtained for the establishment of a secondary reinforcer. (KW)

ABSTRACT 23246

EC 02 3246 ED 011 065
Publ. Date Aug 66 45p.
Malpass, Leslie F. and Others
Programed Reading Instruction for Culturally Deprived Slow Learners.
MacDonald Training Center Foundation, Tampa, Florida
Office of Education (DHEW), Washington, D. C., Bureau of Research
EDRS mf,hc
OEC-2-7-068438-0069
BR-6-8438

Descriptors: exceptional child research; reading; disadvantaged youth; slow learners; programed instruction; programed materials; basic reading; teaching machines; workbooks; primary education; programed texts; culturally disadvantaged; reading instruction; beginning reading; vocabulary development; reading research; student evaluation

The effectiveness of programed instructional materials for teaching basic reading skills to slow learning, culturally deprived children (aged 6 to 9) was evaluated. The same materials had been previously evaluated with educable mentally retarded subjects (aged 10 to 16). To determine what modifications would be needed for use with younger students, 45 children were divided into one control group taught by traditional classroom techniques and two experimental groups, one taught by machine, and one taught using programed workbooks. Each group received the same list of words selected by the authors. At the end of the experiment, the children were tested for vocabulary improvement. The scores of each group were statistically compared with those of every other group. The results showed a statistically significant improvement in vocabulary gain for the machine-taught group over the control group and for the workbook-taught group over the control group, but no significant difference was found between the machine-taught and the workbook-taught groups. The conclusion was that programed instructional materials tend to increase reading skills and are feasible for use with the population sampled. (LB)

ABSTRACT 23247

EC 02 3247 ED 011 070
Publ. Date Mar 67 190p.
McClain, John D.; Kovacs, Frank W.
Programed Instruction for Superior Students in Small High Schools.
Clarion State College, Pennsylvania
Office of Education (DHEW), Washington, D. C., Bureau of Research
EDRS mf,hc
OEC-4-16-026 NDEA-V11B-451-1
BR-5-0706-1

Descriptors: exceptional child research; gifted; programed instruction; program evaluation; measurement techniques; innovation; rural schools; rural environment; high schools; demonstration projects; newsletters; information dissemination; secondary school students; parent school relationship; community support; Attitude toward Programed Instruction Inventory; Semantic Differential Scale

Superior students in rural high schools were given programed instruction in selected subject areas to determine whether a nondirective method of diffusing an innovation, like programed instruction, was appropriate for dissemination in a rural environment. The effects of the cooperative demonstration project on students, parents, teachers, and high school administrators were measured by the Attitude toward Programed Instruction Inventory and the Semantic Differential Scale. Results showed that predisposition of the individual to either adoption or rejection will affect the rate and final decision regarding the acceptance or rejection of the innovation. It was recommended that premeasures should be employed to determine the predisposition of the target population, and it was concluded that the nondirective method of diffusing an innovation was appropriate for the dissemination of programed instruction in a rural environment. Since the use of newsletters proved to be an important contribution to the success of the project, the use of similar means of communication with the target audience is advised when dissemination is an objective. (GD)

ABSTRACT 23411

EC 02 3411 ED N.A.
Publ. Date Sep 70 9p.
Pfau, Glenn S.
The Application of Programed In-

struction Principles to Classroom Instruction.
EDRS not available
Volta Review; V72 N6 P340-8 Sep 1970

Descriptors: exceptional child education; aurally handicapped; programed instruction; multimedia instruction; teaching machines; behavioral objectives; classroom techniques

Programed instruction for the deaf is described and related to traditional class room instruction. The areas of behavioral objectives, overt responses, immediate feeback, hierarchic presentation, evaluation, reinforcement, and transfer are also discussed. (Author/RD)

ABSTRACT 30004

EC 03 0004 ED N.A.
Publ. Date 70 7p.
Rush, Mary Lou
Problems in Teaching Concepts: A Programer's View.
EDRS not available
Teaching Exceptional Children; V2 N4 P176-80, 185-6 Sum 1970

Descriptors: exceptional child education; aurally handicapped; programed instruction; concept formation; word recognition; teaching methods; language development

Presented are some considerations which must be taken into account when programing, or teaching, concepts. Problems encountered and solutions adopted when developing language programs for deaf students to be used on teaching machines are described. Aspects covered include the focusing of attention (cueing techniques for written words and for pictures), recognizing differences in word configuration, recognizing a concept in different visual forms (lipread message, written and pictorial forms), spatial (visual stimuli) versus temporal (auditory stimuli) dimensions of language, and frame design. (KW)

ABSTRACT 30144

EC 03 0144 ED N.A.
Publ. Date 67 649p.
Hendershot, Carl
Programed Learning: A Bihliography of Programs and Presentation Devices. Fourth Edition.
EDRS not available
National Society For Programed Instruction, Trinity University, 715 Stadium Drive, San Antonio, Texas 78212 ($27.00-2 Volumes).

Descriptors: programed instruction; programed materials; bibliographies; annotated bibliographies; directories; audiovisual aids; autoinstructional programs; instructional materials; multimedia instruction

In the format of two separate volumes in loose leaf binding, the bibliography of resources in programed materials provides the following information for items covering a full range of age levels and subjects: title, author, publisher, approximate hours or number of lessons, ability level, price, and supplementary descriptions. Volume One contains a comprehensive listing of programs by subjects, a directory of publishers, and a table of contents for the entire document. Volume Two includes programs listed by publishing companies, devices assisting in the presentation of programs [illegible]struction, audiovisual materials, systems for [illegible]aining), and references as [illegible], periodicals, and other [illegible]on. (RD)

ABSTRACT 30423

EC 03 0423 ED 043 987
Publ. Date 69 245p.
Symposium on Research and Utilization of Educational Media for Teaching the Deaf: Individualizing Instruction for the Deaf Student.
Midwest Regional Media Center For The Deaf, Lincoln, Nebraska;
Nebraska University, Lincoln, Teachers College
Office Of Education (DHEW), Washington, D. C., Captioned Films For The Deaf Branch
EDRS mf,hc
Proceedings Of A National Conference (Lincoln, Nebraska, March 17-19, 1969).

Descriptors: exceptional child education; aurally handicapped; individualized instruction; instructional media; computer assisted instruction; teaching methods; programed instruction; educational technology

Presented are the proceedings of a conference dealing with individualizing instruction for the deaf through greater use of educational media to permit the deaf student to progress at a maximum learning rate. Included are a report on the year's activities of Media Services and Captioned Films, and keynote addresses by James J. Gallagher on the organization of the educational establishment and by Gabriel Ofiesh on educational technology. Discussion papers deal with individually prescribed instruction, planning for individualized instruction of deaf students at NTID (Rochester, N.Y.), mediated self instruction, computer assisted instruction, mathematics curriculum supported by computer assisted instruction, use of programed instruction with emotionally disturbed deaf boys, and the role of media. A discussion summary and the conference program and roster are also included. (KW)

ABSTRACT 30489

EC 03 0489 ED N.A.
Publ. Date Apr 69 10p.
Winsberg, Bertrand G.
Programed Learning, Teaching Machines, and Dyslexia.
EDRS not available
American Journal Of Orthopsychiatry; V39 N3 P418-27 Apr 1969

Descriptors: programed instruction; teaching machines; teaching methods; research needs; programing; reading

Examined is the growing use of teaching machines and programed learning in instruction, and a lack of careful evaluation of programed methods by controlled studies is cited. Introductory definitions pertinent to programed methods are given prior to a discussion of the status of the empirical basis of programing. Problems involved in assessing the effectiveness of programed instruction are outlined and some findings from controlled studies of the effectiveness of programing in the acquisition of beginning reading skills are presented. (KW)

ABSTRACT 30512

EC 03 0512 ED 015 603
Publ. Date 66 132p.
Karlsen, Bjorn
Teaching Beginning Reading to Hearing Impaired Children, Using a Visual Method and Teaching Machines. Final Report.
Minnesota University, Minneapolis
Office Of Education (DHEW), Washington, D. C.
EDRS mf,hc
OEG-7-33-0400-230
BR-1204
University Of Minnesota Bookstore, Minneapolis, Minnesota 55455.

Descriptors: exceptional child research; aurally handicapped; reading materials; teaching methods; beginning reading; teaching machines; programed instruction; reading instruction; programed materials; Honeywell University of Minnesota Teaching Device (HUMID)

To teach beginning reading to hearing impaired children through visual presentations, the project designed and built a teaching machine, generated programs, and tested the system (Honeywell University of Minnesota Teaching Device or HUMID. Programs incorporated various techniques and new approaches. To test one of the programs with deaf and hard of hearing children, a group of 10 first graders and a group of 9 and 10 year old students from a remedial class were taught 34 programs. Control groups were also formed. Results of a test on the concepts of the programs showed the first grade experimental group scored significantly better (at the .01 level) than its control group; the remedial experimental group scored better (not significantly) than its control group. On standardized tests the first grade experimental group approached a difference of statistical significance with scores higher than their control group, but no significant differences were found between the remedial experimental and control groups. Additional studies are reported. It was concluded that an automated system to teach reading non-orally can be developed and that teaching machines have a place in classrooms for the deaf. (MS)

ABSTRACT 30912

EC 03 0912 ED N.A.
Publ. Date Dec 70 9p.
Sanzone, Jean F.
Edueational Materials: Programed

Lesson Series in Auditory Discrimination.
EDRS not available
Education And Training Of The Mentally Retarded; V5 N4 P177-85 Dec 1970

Descriptors: exceptional child education; auditory perception; programed materials; culturally disadvantaged; educable mentally handicapped; instructional materials; language instruction; lesson plans

In 1968, the author made a comparative study of approaches to the teaching of auditory discrimination to culturally disadvantaged, educable mentally retarded children in exceptional child centers for whom a lesson kit was designed. This article describes rationale for the kit, design of the kit, its use during the research, and use of the kit now that the teachers are no longer operating under the research design. (Author)

ABSTRACT 31024

EC 03 1024 ED 044 039
Publ. Date Aug 70 54p.
Knutson, Jack M.; Prochnow, Robert R.
Computer Assisted Instruction for Vocational Rehabilitation of the Mentally Retarded.
Texas University, Austin, College Of Education
Social And Rehabilitation Service (DHEW), Washington, D. C.
EDRS mf,hc

Descriptors: exceptional child research; educable mentally handicapped; vocational rehabilitation; computer assisted instruction; mentally handicapped, program descriptions; program design; research reviews (publications)

A detailed description of the conception, development, and results of a 2 year project designed to teach the educable mentally handicapped student a set of useful, generalized skills using a computer assisted instruction (CAI) system is presented. Background information on the problem of vocational rehabilitation of the mentally handicapped, present costs, and recent research in the development of better instructional techniques are discussed. Course development, production of a CAI program, developmental testing on the system, pretest, and administration of the instructional materials are presented. Of the 21 students who completed the course, the researchers felt the majority showed an improvement in change-making skills. The CAI is felt to be effective in teaching a set of specified skills to the mentally handicapped student. A detailed example of the logic and instruction in the change-making module is included. (CD)

ABSTRACT 31139

EC 03 1139 ED N.A.
Publ. Date Jan 71 3p.
Prescott, Robin
Acoustic Puzzles: Auditory Training Games.
EDRS not available
Volta Review; V73 N1 P51-3 Jan 1971

Descriptors: exceptional child education; aurally handicapped; auditory training; audio equipment; teaching machines; preschool children

A teaching machine which requires a deaf child to make a visual-motor response to sound is described. In playing this acoustic puzzle, children hear recordings of events familiar to preschool aged children (mother laughing, phone ringing, etc.) and, upon matching the sound with a corresponding picture, press the button next to that picture. If the response is correct, a light comes on. A diagram shows the design of the equipment and the electronic components used. (KW)

ABSTRACT 31205

EC 03 1205 ED N.A.
Publ. Date Nov 70 14p.
Holland, Audrey L.
Case Studies in Aphasia Rehabilitation Using Programed Instruction.
EDRS not available
Journal Of Speech And Hearing Disorders; V35 N4 P377-90 Nov 1970

Descriptors: exceptional child research; speech handicapped; aphasia; programed instruction; case studies; speech therapy; group therapy; programed materials

The advantages and limitations of applying programed procedures in a clinic to help aphasic clients are discussed. The background for this work is summarized, a series of seven selected case records and one semiprogramed group experience are reviewed, and some general considerations regarding programed instruction for aphasics are discussed. The cause of the aphasia and the program used for each case is described. The summary of programed approaches for individual patients is presented in table form including the activity, stimulus mode, and response form. Problems associated with programed instruction are discussed including the nature of the teaching material and how to use the materials for aphasics. It is emphasized that it is probably more practical for the clinician to devote his time to experimental development of his own programed materials, than to use materials developed by another clinician. (GD)

ABSTRACT 31242

EC 03 1242 ED 046 158
Publ. Date 70 91p.
The Role of Media in the Education of Emotionally Handicapped Children. Proceedings of a Special Study Institute (Riverhead, New York, April 22-24, 1970).
New York Education Department, Albany, Division For Handicapped Children;
Suffolk County Board Of Cooperative Educational Services, Patchogue, New York
EDRS mf,hc

Descriptors: exceptional child education; emotionally disturbed; media technology; computer assisted instruction; televised instruction; instructional media; instructional materials centers; typewriting; closed circuit television; conference reports

Summarized are the proceedings of the Special Study Institute, attended by directors of special education and of educational communications, and by teachers of emotionally handicapped children. Several projects in the fields of special education media were presented and reviewed, illustrating innovative approaches to teaching emotionally handicapped children. Presentations covered computer-based instructional units, use of media by teachers, the talking typewriter, computer-assisted instruction, analysis of student behavior via closed circuit television, and implications of educational television. Also included are the keynote address by Raymond Wyman and a discussion of the Special Education Instructional Materials Centers (SEIMCs). (KW)

ABSTRACT 31471

EC 03 1471 ED 046 206
Publ. Date Sep 70 45p.
Blumberg, Allen
A Pilot Project for Preparing Special Education Teachers Regarding New Teaching Methods. Final Report.
West Virginia University, Morgantown
Bureau Of Elementary And Secondary Education (DHEW/OE), Washington, D. C.
EDRS mf,hc
BR-70-018-001

Descriptors: exceptional child research; teacher education; teaching methods; mentally handicapped; case studies (education); operant conditioning; programed instruction; psycholinguistics; inservice teacher education

The study relates an attempt to prepare teachers of the mentally retarded regarding new teaching methods. Emphasis is placed on methods of learning rather than the careful diagnosis of the child's disability. Through the study, selective groups of special education master teachers (supervisory personnel with classroom experience) were trained in three methods: operant conditioning, psycholinguistics, and programed learning. The teachers learned the theoretical model and functional application of each method in order to serve as leaders and consultants in inservice training. The results of using the three methodologies with retarded children are presented by the use of illustrative case studies. Based on the positive results of the study, recommendations are presented for the implementation of the training of special education teachers. (CD)

ABSTRACT 31524

EC 03 1524 ED 046 444
Publ. Date 70 90p.
Exceptional Children Conference Papers: The Use and Evaluation of Instructional Technology in the Classroom.

Council For Exceptional Children, Arlington, Virginia
EDRS mf,hc
Papers Presented At The Special Conference On Instructional Technology (San Antonio, Texas, December 1-4, 1970).

Descriptors: exceptional child education; instructional technology; conference reports; evaluation; educational equipment; classroom materials; computer assisted instruction; learning processes

A collection of ten papers selected fr those presented at the Special C ence on Instructional Techno\ogy (S Antonio, Texas, December 1-4, 197(consider the use and evaluatic structional technology in the classroom. Papers examine such areas as stimulation of the learning process through technology, the use of the paraprofessional as an interface through programed tutoring in the teaching of reading, the modular instructional system as an interface, man-machine interfaces in training optacon readers, a computer assisted instruction course in the early identification of handicapped children, evaluation of instructional materials and prediction of student performance, validation of learning modules, and instructional resources and their application to a child centered learning process. Other collections of papers from the conference have been compiled and are available as EC 031 520 (Adoption of Technology and Program Development), EC 031 521 (Instructional Technology for Personnel Training), EC 031 522 (The Improvement of Special Education Through Instructional Technology), and EC 031 523 (Communication, Production, and Dissemination of Instructional Technology). (CD)

ABSTRACT 31662

EC 03 1662 ED N.A.
Publ. Date Feb 71 4p.
Dezelle, Walter
The Credibility of Programed Material as an Instruetional Teehnique with Mentally Retarded Pupils.
EDRS not available
Education And Training Of The Mentally Retarded; V6 N1 P16-9 Feb 1971

Descriptors: exceptional child research; mentally handicapped; programed materials; teaching methods; mathematics

The credibility of programed materials in arithmetic as an instructional technique with junior high mentally handicapped pupils was investigated in a population sample from five school districts. The group of pupils using programed instruction achieved as well as the matched control group using a variety of conventional techniques in the classrooms of five experienced teachers. Neither group's pre or posttest gains were significant though slight indications were found to favor the experimental group using programed instruction. Evidence was found to qualify programed instruction as a credible instructional technique with pupils similar to the population used for this study. (Author)

ABSTRACT 32495

EC 03 2495 ED N.A.
Publ. Date Jun 71 7p.
Leonard, Laurence B.; Webb, Clarence E.
An Automated Therapy Program for Articulatory Correction.
EDRS not available
Journal of Speech and Hearing Research; V14 N2 P338-44 Jun 1971

Descriptors: exceptional child research; speech handicapped; articulation (speech); speech therapy; teaching machines; positive reinforcement; feedback

An automated therapy program, which consisted of 10 half-hour sessions, was designed to establish appropriate production of seven speech sounds in isolation and in words. The apparatus employed utilized tape-recorded material for stimuli and immediate playback to the child of his own correct response, made possible by integrating a delayed feedback (4 sec) device into the system, for reinforcement. A highly significant improvement occurred between the initial and final testing of the eight children who participated in the study. It was also found that there was significant carry-over of correct productions of the sounds taught into words not practiced, although performance on the actual practice words was significantly higher still. (Author)

ABSTRACT 32562

EC 03 2562 ED N.A.
Publ. Date Jun 71 6p.
Wills, Martee
Dovack's Machines Help Children Read.
EDRS not available
American Education; V7 N5 P3-8 Jun 1971

Descriptors: exceptional child education; disadvantaged youth; remedial reading; remedial programs computer assisted instruction; programed instruction; reading difficulty; reading skills; Dovack

A computerized remedial reading program (DOVACK) is described. The program allows the child to draw upon his own experiences to provide a story base, and standard English pronunciation is inserted while maintaining the child's original word order. The computer stores a tabulation of the total number of words dictated by the student, tests him on the new words, and keeps track of all test scores. Modifications that have been made in the system over the two years of its existence are touched on. The improvement of student self image, better work habits, and attitudes toward reading are noted as resulting from use of the program (CD)

ABSTRACT 32709

EC 03 2709 ED N.A.
Publ. Date Sum 71 3p.
Burr, Helen G.; Ervin, Jean C.
Clearinghouse: Programed and Traditional Procedures in the Auditory Discrimination Phase of Articulatory Rehabiltation.
EDRS not available
Exceptional Children; V37 N10 P752-4 Sum 1971

Descriptors: exceptional child research; speech handicapped; articulation (speech); auditory perception; programed instruction; speech therapy

Automated programing and traditional speech therapy procedures for teaching auditory discrimination of the /s/ phoneme were compared. The EFI Audio Notebook was used, with a 20-lesson program recorded on EFI multichannel magnetic tapes. Each lesson provided 156 half-minute randomized items, of which 78 were stimulus and 78 were repeat items, and lessons provided ascending levels of speech sound discrimination difficulty. Matched control and experimental groups, selected from 40 second through fourth grade students were administered three articulation and auditory discrimination tests before, after, and 1 month after training. The groups were evaluated on achievement in auditory discrimination of the /s/ phoneme, general auditory discrimination, articulation of the /s/ phoneme, and articulation of other phonemes. Findings showed both groups progressed in similar manner and made similar gains, improving not just in discrimination of the /s/ phoneme but in all four behaviors tested. Retention of achievement was also similar for both groups, indicating that automated and traditional procedures are equally effective in teaching discrimination of the /s/ phoneme. (KW)

ABSTRACT 32932

EC 03 2932 ED N.A.
Publ. Date Aug 71 3p.
Littleton, Arthur Charles; McBrayer, James Donald
Hardware with Software Implications for Special Education.
EDRS not available
Educational Technology; V11 N8 P55-7 Aug 1971

Descriptors: exceptional child research; handicapped children; instructional materials; cognitive processes; problem solving; equipment utilization; teaching machines

Educational applications and implications of the bulb testing apparatus (BTA) are discussed, following a technical description of the instrument. By reinforcing appropriate switch depressing behavior with a lighted bulb, the BTA provides a structured situational context within which to study thinking and related processes. Meeting the established prerequisites of usability, reliability, simplicity, and economy, the BTA functions well as both diagnostic tool and teaching device. Teachers can diagnose problem solving strategies such as perceptual, guessing, random, and conceptual. The BTA's positive reinforcement permits teaching various cognitive strategies to suit occasions when use of different strategies is indicated. (CB)

ABSTRACT 33198

EC 03 3198 ED 054 565
Publ. Date 71 263p.
Programmed Learning for the Deaf Student. Symposium on Research and Utilization of Educational Media for Teaching the Deaf (Lincoln, Nebraska, March 22-24, 1971).
Nebraska University. Lincoln. Midwest Regional Media Center for the Deaf;
New Mexico State University. Las Cruces. Southwest Regional Media Center for the Deaf
Bureau of Education for the Handicapped (DHEW/OE). Washington. D. C., Media Services And Captioned Films for the Deaf Branch
EDRS mf,hc

Descriptor [illegible]cation; aurally handicapped; program instruction; computer assisted instruction; teaching machines; educational technology; conference reports

The document consists of keynote speeches and discussion papers from the 1971 Symposium on Research and Utilization of Educational Media for Teaching the Deaf, which had as its general theme programed instruction (PI) for the deaf. The 14 papers cover the impact of PI at the Southwest Regional Media Center for the Deaf, evaluation of PI materials, the role of computer assisted instruction at the National Technical Institute for the Deaf, the relationship of economic factors to education and employment of the deaf, modification of automated instruction to financially allow its adoption, and PI in the curriculum at the Oregon State School for the Deaf in Salem, the Southwest School for the Deaf (Lawndale, California), and Callier Hearing and Speech Center in Dallas. Also discussed are new directions and a new affective dimension in PI, methods for teaching communication skills. PI for young deaf children, research with the strands program in elementary mathematics in a computer-based laboratory for learning at Stanford, a graduate course in educational technology, and a PI course in electronics assembly. A discussion summary and the symposium program are included. (KW)

ABSTRACT 33216

EC 03 3216 ED 054 567
Publ. Date Jul 71 15p
Spidal, David A
Considerations in the Evaluation of Language for Inclusion in a Programmed Language System for the Deaf.
New Mexico State University. Las Cruces. Project LIFE
EDRS mf,hc
Paper Presented to the Summer Institute on Programed Instruction (Las Cruces, New Mexico, July 8, 1971).

Descriptors: exceptional child education; aurally handicapped; language instruction; sentence structure; programed instruction; language development; language arts; vocabulary

The paper examines aspects of language (morphology, syntax, and semology) as they relate to effective instruction in the area of language with deaf students. Pointed out are language factors to keep in mind when preparing instructional materials for the deaf, such as words with more than one meaning and other problems affecting comprehension of a sentence. Explained is the language grid developed by Project LIFE to be used in identifying levels of linguistic competency as used with certain vocabulary, to assist the teacher in preparing language materials to supplement those developed by Project LIFE and in evaluating materials for utilization in the reading and language program. The language grid helps the teacher identify linguistic structures which the student understands. The structural matrix plus the listed vocabulary and concept usage listing provides the teacher with tools to evaluate the reading and language operational level of the student. The grid represents the sequential development of language principles and sentence patterns in the first eight units of the LIFE programed language filmstrips (KW)

ABSTRACT 40020

EC 04 0020 ED N.A.
Publ. Date May 71 6p.
Lehmann, Phyllis E.
Teacher Training Takes to the Road.
EDRS not available
Manpower; P1-6 May 1971

Descriptors: computer assisted instruction; computers; teaching methods; teaching machines; programed instruction; mobile classrooms; inservice teacher education; Pennsylvania

Pennsylvania State University's mobile van equipped for computer assisted instruction (CAI) is discussed. The mobile classroom consists of a central IBM computer instructional system with 15 student terminals. Multi-media programed courses take an average of 30 hours to complete. The individualized teaching method is said to benefit middle-aged teachers especially, who may not feel comfortable in regular classroom settings as students. The mobile classroom is also shown to be helpful throughout Appalachia's isolated areas that need quality inservice teacher education. A small staff runs the teaching machine with an annual operational cost of $250,000. A CAI special education course is described as helping teachers one had G-G translocation Down's syndrome; and two had G-D translocation carriers. It was found that chromosome number 21 was the bright-G chromosome in the patients. Another discovery was that fluorescent patterns enabled identification of the D chromosome in G-D translocation, whether the chromosome was 13, 14, or 15. (CB)

ABSTRACT 40202

EC 04 0202 ED N.A.
Publ. Date Oct 71 6p.
Summers, Hubert and Others
Programmed Instruction at the Southwest Regional Media Center for the Deaf: Its Impact.
EDRS not available
American Annals of the Deaf; V116 N5 P449-54 Oct 1971
Paper Presented at Symposium on Research and Utilization of Educational Media for Teaching the Deaf (Lincoln, Nebraska, March, 1971).

Descriptors: exceptional child education; aurally handicapped; programed instruction; inservice teacher education; instructional materials centers

Activities involving or related to programed instruction are discussed. The programing process is defined to encompass identification of needs, target population characteristics, developing measurable instruction objectives, designing interactive instruction, developmental testing, revising, and validating. Teacher institutes in programed instruction and instructional systems are described as having the goal of making participants more informed consumers of programed instructional materials. Considered next is the Systematic Development of Instruction Workshop, whose resulting materials are to be disseminated to teacher preparation programs for the deaf in late 1971. Another activity mentioned is a multischool course design in upper elementary social studies, followed by explanation of an instructional materials center developed by educators of the deaf. The authors conclude by advocating more teacher developed materials. (CB)

ABSTRACT 40203

EC 04 0203 ED N.A.
Publ. Date Oct 71 9p.
Garner, Waunita L.; Zerrip, Charles E., Jr.
Evaluating Programmed Learning Materials.
EDRS not available
American Annals of the Deaf; V116 N5 P456-64 Oct 1971
Paper Presented at Symposium on Research and Utilization of Educational Media for Teaching the Deaf (Lincoln, Nebraska, March, 1971).

Descriptors: exceptional child education; aurally handicapped; programed instruction; programed materials; evaluation criteria; educational needs; records (forms)

Designed for the classroom teacher with little experience in programed instructional materials, the paper discusses selection of programed instructional materials for deaf children on the basis of evaluating the materials' suitability for deaf children. An evaluation of the materials first covers analysis of need, which is composed of identification of specific lesson purpose, a set of measurable behavioral objectives, and several test items designed to measure the objectives. Second, the evaluation allows for a comparison among available programs and analysis of classroom needs. Specific student educational needs then examined are program suitability, subject or behavior prerequisites, internal characteristics, responses, general interests, and admin-

istration. An evaluation criteria form to assist the teacher with selection of programed instructional materials is provided in the paper. (CB)

ABSTRACT 40204

EC 04 0204 ED N.A.
Publ. Date Oct 71 3p.
Barnes, Dennis D.; Finkelstein, Arlene
The Role of Computer Assisted Instruction at the National Technical Institute for the Deaf.
EDRS not available
American Annals of the Deaf; V116 N5 P466-8 Oct 1971
Paper Presented at Symposium on Research and Utilization of Educational Media for Teaching the Deaf (Lincoln, Nebraska, March, 1971).

Descriptors: exceptional child education; aurally handicapped; computer assisted instruction; programed materials; mathematics; computers; educational methods; curriculum

Computer assisted instruction (CAI) is discussed as an educational method for deaf students. CAI is said to provide concentrations of visual stimuli that deaf students need, and consists of a television-like screen and a random access filmstrip projector. The computer's power is shown to derive from its speed and memory capacities. A specific CAI course, the mathematics diagnostic system (MDS), is then explained. The course is designed to provide students with mathematical skills to successfully complete a beginning calculus course. The MDS consists of 21 segments and is arranged so that students work in areas of deficiency only. An important aspect of the CAI mathematics course is said to be the performance recordings. Other subject applications of CAI are presented briefly. (CB)

ABSTRACT 40206

EC 04 0206 ED N.A.
Publ. Date Oct 71 3p.
Lowell, Edgar L.
Is There a Middle Ground?
EDRS not available
American Annals of the Deaf; V116 N5 P473-5 Oct 1971
Paper Presented at Symposium on Research and Utilization of Educational Media for Teaching the Deaf (Lincoln, Nebraska, March, 1971).

Descriptors: exceptional child education; aurally handicapped; instructional media; instructional materials; teaching machines; equipment

High cost and possible obsolescence of computer assisted instructional machines and lack of flexibility of inexpensive instructional devices are cited as reasons for adopting a multiple choice response device that can control a slide, filmstrip, or motion picture projector for use in deaf educational programs. Called a program master, the device uses educational material developed by Project LIFE and locally produced materials. The scope of materials produced locally and inexpensively for the machine are said to range from physiology of the ear to machine familiarization programs for 3-year olds. (CB)

ABSTRACT 40208

EC 04 0208 ED N.A.
Publ. Date Oct 71 4p.
Murphy, Harry
Activities in Programmed Instruction at the Southwest School for the Deaf.
EDRS not available
American Annals of the Deaf; V116 N5 P480-3 Oct 1971
Paper Presented at Symposium on Research and Utilization of Educational Media for Teaching the Deaf (Lincoln, Nebraska, March, 1971).

Descriptors: exceptional child education; aurally handicapped; programed instruction; instructional materials; inservice teacher education; teaching machines

Activities and interests in programed instruction at the Southwest School for the Deaf, Lawndale, California, are presented. Inservice teacher education workshops in behavioral objectives and programed instruction are described first. Two teaching machines used in the educational programs are E-Z Ed machine and Project LIFE Program Master, which are shown to be accompanied by teacher developed instructional materials and commercially prepared materials such as, the Sullivan reading series, the Sullivan mathematics series, programs distributed by the Institute for Programed Teaching, Project LIFE materials, and Rush's language of directions. The school's interest in computer assisted instruction and use of the learning wall, an interactive rear-screen device, are also noted. (CB)

ABSTRACT 40209

EC 04 0209 ED N.A.
Publ. Date Oct 71 5p.
Pipe, Peter
New Directions in Programmed Learning.
EDRS not available
American Annals of the Deaf; V116 N5 P484-8 Oct 1971
Paper Presented at Symposium on Research and Utilization of Educational Media for Teaching the Deaf (Lincoln, Nebraska, March, 1971).

Descriptors: exceptional child education, aurally handicapped; programed instruction; programed materials; educational trends; instructional materials; educational technology

Perspectives on programed instruction are presented. Briefly noted are B.F. Skinner's linear programing and Norman Crowder's branching programing. The writing of programed instructional material is then mentioned, with recognition that program writing needs to be followed by developmental testing and revision. Moving from programed instruction to the broader perspective of educational technology is explained to bring needs for specifying measurable outcomes for instruction, for ensuring relevance of outcomes to students' futures, for identifying efficient processes for achieving outcomes, and for amending deficient processes and outcomes with feedback. The author concludes by advocating that the programer of instructional materials needs to be concerned with student attitudes as well as with cognitive and psychomotor development. (CB)

ABSTRACT 40212

EC 04 0212 ED N.A.
Publ. Date Oct 71 3p.
Tellam, Joan
Programmed Instruction for Young Deaf Children.
EDRS not available
American Annals of the Deaf; V116 N5 P497-9 Oct 1971
Paper Presented at Symposium on Research and Utilization of Educational Media for Teaching the Deaf (Lincoln, Nebraska, March, 1971).

Descriptors: exceptional child education; aurally handicapped; programed instruction; program descriptions

Selected characteristics of programed instruction for young deaf children are presented. Young deaf children are defined as those children who are prelingually deaf and whose reading ability is limited to word-picture association. Characteristics covered are behavioral objective; directions for response method; pretest, to be administered after establishing response modes; hierarchic presentation; confirmation, or informing child of his progress results; reinforcement in form of success or extrinsic motivation; and posttest. The author's experience with group programed instruction is briefly mentioned. (CB)

ABSTRACT 40213

EC 04 0213 ED N.A.
Publ. Date Oct 71 9p.
Suppes, Patrick
Computer Assisted Instruction for Deaf Students.
EDRS not available
American Annals of the Deaf; V116 N5 P500-8 Oct 1971
Paper Presented at Symposium on Research and Utilization of Educational Media for Teaching the Deaf (Lincoln, Nebraska, March, 1971).

Descriptors: exceptional child education; aurally handicapped; computer assisted instruction; curriculum; mathematics; elementary education; junior high school students

An overall view of work in computer assisted instruction (CAI) for the deaf at the Stanford University Network is presented. A Stanford computer reaches schools for the deaf throughout the country. The salient feature of CAI is said to be the potential for individualizing curriculum instruction. First described is the strands program in mathematics for elementary students which consists of a curriculum structure classifying problems appropriate for an elementary school mathematics program, a set of rules for determining appropriate problems for the student, and a set of rules for defining student progress in the

program. Next described is the curricular area of mathematical logic and algebra for junior high school students, in which the computer accepts any logically valid response of the student. An evaluation of the CAI mathematical program is explained to involve administration of the arithmetic portion of the Stanford Achievement Test in a pretest and posttest design. Test results for 1967-68 indicate that students in the experimental group did significantly better than students in the control group. Thoughts on future programs in the logic and mathematics subject areas conclude the article. (CB)

ABSTRACT 40214

EC 04 0214 ED N.A.
Publ. Date Oct 71 6p.
Torr, Donald
A Graduate Course in Educational Technology.
EDRS not available
American Annals of the Deaf; V116 N5 P509-14 Oct 1971
Paper Presented at Symposium on Research and Utilization of Educational Media for Teaching the Deaf (Lincoln, Nebraska, March, 1971).

Descriptors: exceptional child education; aurally handicapped; educational technology; programed instruction; programed materials; educational facilities; instructional materials; graduate study

Organization, resulting instructional material, and evaluation comments for an educational technology course in programed learning for deaf students are explained. The terminal performance objective of the course is that each student produce a self-instructional package of learning material for deaf students. Students in the course are given instructional packages explaining course goal, major terms, and course schedule. Educational facilities are said to include specially equipped carrels, group meeting room used also as camera and television studio, and room for student practice with TV equipment. Instructional materials prepared by the students are then presented with objectives, purposes, instructions, and testing procedures given, where applicable, for preschool, elementary, and high school levels. Selected objectives are a child's buttoning and unbuttoning a given number of buttons, a child's printing the letters b or d as required by material, and a child's insertion of the words and or but where appropriate. The author's evaluation comment suggests that the program is a success. (CB)

ABSTRACT 40215

EC 04 0215 ED N.A.
Publ. Date Oct 71 11p.
Persselin, Leo E.
Electronic Assembly Programmed Learning System for the Deaf.
EDRS not available
American Annals of the Deaf; V116 N5 P515-25 Oct 1971
Paper Presented at Symposium on Research and Utilization of Educational Media for Teaching the Deaf (Lincoln, Nebraska, March, 1971).

Descriptors: exceptional child education; aurally handicapped; programed instruction; vocational education; program development; senior high school students; program descriptions; models

Development of programed instruction in electronic assembly for deaf high school students is discussed. The programed learning system consists of individual instruction in seven discrete units: mechanical assembly, wire preparation, assembly soldering, wire installation, wire harness building and installation, component installation, and electronic assembly rework techniques. Two conceptual models depict tutorial instruction and electronic assembly programed learning system for the deaf, respectively. Program antecedents are shown to be a combination of World War II audiovisual training program for industry, research, and industrial performance aids. System development from 1967 to 1970 is discussed, with an accompanying figure of the procedural model. Although insufficient evidence exists for conclusive results, the author states that overall experience indicates program effectiveness in instruction and administration. The program is shown to be desirable in that it is self-pacing and does not require a high level of reading skill. (CB)

ABSTRACT 40370

EC 04 0370 ED 056 424
Publ. Date Mar 70 135p.
Grigonis, Dorothea F. and Others
Development and Evaluation of Programmed Instruction in the Teaching of Verbs to Deaf Children in the Primary Grades. Final Report.
Atlanta Speech School, Inc., Georgia
Office of Education (DHEW), Washington, D. C., Bureau of Research
EDRS mf,hc
OEG-32-20-7170-5006
BR-5-0394

Descriptors: exceptional child research; aurally handicapped; deaf; language development; programed instruction; educational programs; vocabulary development; sentence structure; program descriptions, program evaluation; primary grades

The project purpose was to develop and field test a program of instruction for young deaf children which could be used in existing classrooms. The main program contained two areas of instruction in written language: verb vocabulary at a high level of generalization and sentence structure. The program materials were field tested with 78 children in the preparatory levels of three schools. The only criterion for admission to the sample was a simple test of minimum word recognition ability. Subjects ranged from 5 to 10 years of age, and from 3 1/2 to 10 1/2 years on psychometric scores. Three validation criteria, one final performance criterion and two measures of gain, were applied in 28 instances to the pretest and posttest data from the sample groups. The criteria were met in 21 instances. Of the 78 children, 77% achieved mastery in verb vocabulary, and 83% in sentences. Each of the sample groups evidenced statistically significant learning in all areas of instruction. The mean time required for the program was 4.7 hours. It was concluded that the program represented a very effective, as well as an efficient, method of teaching written language to young deaf children. (Author)

ABSTRACT 40539

EC 04 0539 ED 056 447
Publ. Date Aug 70 277p
Tawny, James W.; Hipsher, Lee Wright
Systematic Instruction for Retarded Children: The Illinois Program--Experimental Edition. Part II: Systematic Language Instruction.
Kentucky University, Lexington, Department of Special Education;
Illinois University, Urbana, Institute for Research On Exceptional Children
Office of Education (DHEW), Washington, D. C., Bureau of Research
EDRS mf,hc
OEG-0-8-001025-1777(032)
BR-7-1025

Descriptors: exceptional child education; mentally handicapped; language instruction; programed instruction; guidelines; programed materials; teaching methods; lesson plans; behavior change; reinforcement; trainable mentally handicapped

The teacher's manual on programed language instruction for trainable mentally handicapped children consists of curriculum of basic level vocabulary and teaching methods of small group instruction, reinforcement techniques, and specific learning principles. Distinctive features of the program are said to be: controlled language statements and questions designed to limit the stimuli to which the child responds; provision for child response at motor level, in addition to vocal level; direct, tutorial instruction; controlled learning environment; use of immediate, positive reinforcement techniques; analysis of learning tasks; pretest-teach-posttest sequence; teaching to a specified criterion; specification of prerequisite skills; and programing for the classroom teacher. Manual guidelines consist of four major areas. First, detailed guidelines instruct the teacher on programing himself for the highly structured curriculum. The second section on prerequisite behaviors for language instruction and the third section on vocabulary meaning and usage include model lesson plans. A master word list and a materials list comprise the fourth section and are the basis for the language curriculum and teaching methods presented. (For related programed instruction guidelines, see EC 040 485-6, 040 540-1.) (CB)

ABSTRACT 40540

EC 04 0540 ED 056 448
Publ. Date Aug 70 150p.
Linford, Maxine D. and Others
Systematic Instruction for Retarded Children: The Illinois Program. Part III: Self-Help Instruction.

Illinois University, Urbana, Institute for Research On Exceptional Children
Office of Educatio.. (DHEW), Washington, D. C., Bureau of Research
EDRS mf,hc
OEG-0-8-001025(032)
BR-7-1025

Descriptors: exceptional child education; mentally handicapped; programed instruction; self care skills; guidelines; programed materials; teaching methods; behavior change; reinforcement; lesson plans; trainable mentally handicapped

The manual for programed instruction of self care skills for trainable mentally handicapped children consists of dressing, dining, grooming, and toilet training. Teaching methods used include behavioral analysis and management, task analysis, and errorless learning. The lesson plans in each section are programed to maximize the child's success at each level of learning. Detailed guidelines instruct the parent or child care worker in what he should say and do at each step of instruction. The programed instruction is designed so that the child's dependence on the parent or child care worker for reinforcement decreases as the child becomes proficient at the task. The dressing program includes 12 model lesson plans for instruction in undressing and dressing as it pertains to various articles of clothing. The dining program consists of a model lesson plan on good eating and instruction on behavioral management of inappropriate dining behaviors. The grooming program is comprised of model lesson plans on tooth brushing, hand washing, hair brushing, nose blowing, and related skills. The toilet training program includes basic toilet training information and programed instruction. (For related programed instruction guidelines, see EC 040 485-6, 040 539, 040 541.) (CB)

ABSTRACT 40541

EC 04 0541 ED 056 449
Publ. Date Aug 70 120p.
Linford, Anthony G., Jeanrenaud, Claudine Y.
Systematic Instruction for Retarded Children: The Illinois Program--Experimental Edition. Part IV: Motor Performance and Recreation Instruction.
Illinois University, Urbana, Institute for Research On Exceptional Children
Office of Education (DHEW), Washington, D. C., Bureau of Research
EDRS mf,hc
OEG-0-8-001025-1777(032)
BR-7-1025

Descriptors: exceptional child education; mentally handicapped; programed instruction; motor development; recreation; trainable mentally handicapped; programed materials; music; handicrafts; lesson plans; guidelines

The manual of programed instruction for motor skills and recreational activities for trainable mentally handicapped children includes guidelines on basic recreation movements, rhythm in music, handicrafts, and miscellaneous activities. The guidelines employ principles of behavior change and direct instruction. Detailed programed instruction lists terminal behaviors required from the child when the final task request is mastered. The justification of each skill selected, prerequisite skills, necessary instructional materials and advanced skills are explained. Evaluation criteria for the model lesson plans are provided. Model lesson plans are presented for 18 basic movements that involve one or a combination of the following gross motor movements: balance, object projection, object reception, body projection, and body reception. The rhythm section consists of model lesson plans on four attributes thought to be necessary for musical rhythm readiness: stop and go, loud and soft, fast and slow, and combining dimensions of loudness and fastness. The arts and crafts section includes model lesson plans on modeling with clay, drawing, pasting with glue, painting, and cutting with scissors. The last section concerns 12 miscellaneous activities such as bead threading. (For related programed instruction guidelines, see EC 040 485-6, 040 539-40.) (CB)

ABSTRACT 40907

EC 04 0907 ED N.A.
Publ. Date Feb 72 7p.
Cartwright, Carol A. and Others
CAI Course in the Early Identification of Handicapped Children.
EDRS not available
Exceptional Children; V38 N6 P453-9 Feb 1972

Descriptors: exceptional child education; handicapped children; teacher education; computer assisted instruction; effective teaching; programed instruction; program evaluation; identification; teachers

College students (N equals 114) enrolled in an introductory course in special education were randomly assigned to a conventional instruction (CI) or a computer assisted instruction (CAI) version of the course. The CAI group received all instruction by CAI; the CI group received instruction in the conventional lecture-discussion mode. The CAI students obtained significantly higher criterion test scores than the CI students. Also, the CAI students completed the 3 credit course in an average of 12 hours less time. (Author)

ABSTRACT 41166

EC 04 1166 ED 058 690
Publ. Date (70) 23p.
Cantrell, Mary Lynn
Academic Programming in the Re-Education School.
Tennessee State Department of Mental Health, Nashville
National Institute of Mental Health (DHEW), Bethesda, Maryland
EDRS mf,hc

Descriptors: exceptional child education; emotionally disturbed; behavior problems; programed instruction; elementary school students; learning disabilities; mathematics; spelling; behavior change; operant conditioning; positive reinforcement

Presented are 12 programed instruction exercises in writing letters of the alphabet, spelling words, addition, numeral-number association, subtraction, color words chart, answering basic questions about stories, sentences, paragraphs, and paragraph titles for elementary school children who demonstrate a learning disability and/or behavior problem. Three assumptions behind the programing of the 12 exercises are said to be that academic skills are important for the children, that efficient instruction is needed, and that [illegible] is assumed to be an individual experience. The programing follows principles of behavior change, operant conditioning, and positive reinforcement. (For two related pamphlets, see EC 041 167-8.) (CB)

ABSTRACT 41201

EC 04 1201 ED N.A.
Publ. Date Mar 72 3p.
Driscoll, Mary Cook; Abelson, Carol
Programmed Instruction versus Therapist Instruction: For Children with Learning Disabilities.
EDRS not available
American Journal of Occupational Therapy; V26 N2 P78-80 Mar 1972

Descriptors: exceptional child research; learning disabilities; programed instruction; eye hand coordination; therapists; perceptual motor coordination; educational methods

A study was conducted concerning the effects of the use of programed instruction dictating machines on the improvement of eye-hand coordination skills of children with learning disabilities. The objective was to evaluate the results of using programed instruction versus therapists in improving practice-intensive, perceptual motor skills in children. Test results of a 6-week pilot study confirmed the hypothesis that programed instruction materials can be equally or more effective a therapeutic medium than therapists. A group of learning disabled boys using programed instruction made significantly greater gains in improving eye-hand coordination skills than a control group of learning disabled boys who were treated by therapists. (Author)

ABSTRACT 41223

EC 04 1223 ED N.A.
Publ. Date Mar 72 3p.
Van Duyn, J.
Magic Machines for Autistic Children.
EDRS not available
Early Years; V2 N7 P56-8 Mar 1972

Descriptors: exceptional child services; emotionally disturbed; autism; computers; psychotherapy; language development; retarded speech development; language instruction

Described briefly is Stanford University's Higher Mental Functions Program for autistic children. A computer is used

in the program as a catalyst in the treatment of the nonspeaking children. Emphasis is upon participation and repetition. The computer plays eight different short games in which the child is asked a question requiring a response. The treatment approach is based on the following three assumptions: all children like to play lively noisy games, autistic children favor playing with machines, and computers have limitless patience and persistence, unlike people. (KW)

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